What is claimed is:

1. A prion-binding ligand, wherein the ligand is capable of binding to a peptide having an amino acid sequence RYPxQ (SEQ ID NO:221), wherein x is G, P or N, or wherein the ligand binds to a peptide having an amino acid sequence xxYYux (SEQ ID NO:222), wherein x is any amino acid and u is R or Q.

2. The ligand of Claim 1, wherein the ligand is capable of binding to a peptide having an amino acid sequence selected from the group consisting of RYPGQ (SEQ ID NO:1), DRYYRD (SEQ ID NO:2), QAYYQR (SEQ ID NO:3), and QVYYRP (SEQ ID NO:4).

3. The ligand of Claim 1, wherein the ligand has a molecular weight of less than approximately 6 kDa.

4. The ligand of Claim 3, wherein the ligand is a peptide having an amino acid sequence of six amino acids.

5. The ligand of Claim 4, wherein the ligand is capable of binding to a peptide having an amino acid sequence DRYYRD (SEQ ID NO:2), and wherein the ligand amino acid sequence comprises an amino acid lysine (K) or an amino acid histidine (H).

6. The ligand of Claim 4, wherein the ligand is capable of binding to a peptide having an amino acid sequence QAYYQR (SEQ ID NO:3), wherein the ligand amino acid sequence comprises and amino acid histidine (H), and wherein the ligand possesses a net positive charge at pH 7.

7. The ligand of Claim 1 wherein the ligand is capable of binding to a peptide having an amino acid sequence QVYYRP (SEQ ID NO:4), and the ligand is a peptide having an amino acid sequence that comprises amino acid sequences LL, LI, VL, or II.

8. The ligand of Claim 1 wherein the ligand is capable of binding to a peptide having an amino acid sequence QVYYRP (SEQ ID NO:4), and wherein the ligand is a peptide

having an amino acid sequence that comprises an aromatic amino acid, and wherein the ligand is neutrally charged.

9. The ligand of Claim 1, wherein the ligand is capable of binding to a peptide having an amino acid sequence RYPGQ (SEQ ID NO:1), and wherein the ligand is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:5-13.

10. The ligand of Claim 1, wherein the ligand is capable of binding to a peptide having an amino acid sequence DRYYRD (SEQ ID NO:2), and wherein the ligand is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:14-22.

11. The ligand of Claim 1, wherein the ligand is capable of binding to a peptide having an amino acid sequence QAYYQR (SEQ ID NO: 3), and wherein the ligand is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:23-31.

12. The ligand of Claim 1, wherein the ligand is capable of binding to a peptide having an amino acid sequence QVYYRP (SEQ ID NO:4), and wherein the ligand is a peptide having an amino sequence selected from the group consisting of SEQ ID NOS:31-47.

13. A prion-binding ligand, wherein the ligand is capable of binding to a native form of prion protein (PrPc) and is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:48-100 and SEQ ID NOS:116-139.

14. The ligand of Claim 13, wherein the ligand is capable of binding to a native prion protein that infects humans (huPrPc) and has an amino acid sequence selected from the group consisting of SEQ ID NOS:116-139.

15. A prion-binding ligand, wherein the ligand is capable of binding to both a native form of prion protein (PrPc) and a conformationally altered form of prion protein (PrPsc) and

is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:52, 54, 101-115, and 154-173.

16. The ligand of Claim 15 wherein the ligand is capable of binding to both a native form of prion protein in humans (huPrPc) and a conformationally altered form of prion protein in humans (huPrPsc) and is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:154-173.

17. A prion-binding ligand, wherein the ligand is capable of binding to a prion protein expressed by recombinant technology (PrPr), and the ligand has is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:54, 105, and 140-153.

18. A prion-binding ligand, wherein the ligand is capable of binding to a conformationally altered form of prion protein (PrPsc), and the ligand ~~has~~ is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:174-194, 147, 152, 206, 213, and 214.

19. A prion-binding ligand, wherein the ligand is capable of binding to a native form of prion protein (PrPc) or a conformationally altered form of prion protein (PrPsc) treated with proteinase K, and the ligand is a peptide having an amino acid sequence selected from the group consisting of SEQ ID NOS:195-212.

20. A method of detecting a prion protein in a sample, comprising:

contacting the sample with a ligand capable of binding to one or more prion proteins, a fragment thereof, or a peptide derived therefrom under conditions sufficient to cause formation of a complex between the prion protein, the fragment thereof, or the peptide derived therefrom and the ligand; and

detecting the complex in the sample.

21. The method of claim 20 wherein the sample is a biological sample.

22. The method of claim 21 wherein the biological sample is selected from the group consisting of whole blood, white cells, mononuclear cells, platelet concentrates, blood, plasma, serum, cerebrospinal fluid, urine, saliva, milk, ductal fluid, tears, semen, feces, tonsils, lymph nodes, collagen, brain extracts and gland extracts.

23. The method of claim 21 wherein the ligand is attached to a solid support prior to contacting the sample.

24. The method of claim 23 wherein the solid support is selected from the group consisting of membranes and resins.

25. The method of claim 23 wherein the solid support is a resin selected from the group consisting of polymethacrylate, agarose, sepharose, cross-linked agarose, composite cross-linked polysaccharides, celite, polyvinyl D, fluoride acrylate, polystyrene and cellulose.

26. The method of claim 23 wherein the solid support is polymethacrylate resin.

27. The method of claim 23 wherein the solid support is a membrane selected from the group consisting of nylon and cellulose.

28. A method of removing a prior protein from a sample, comprising:

contacting the sample with a ligand capable of binding to one or more peptides or polypeptides derived from a prion protein selected from the group consisting of PrPc, PrPsc and PrPr, under conditions sufficient to cause formation of a complex between the prion protein and the ligand; and

removing the complex from the sample.

29. The method of claim 28 wherein the sample is a biological sample.

30. The method of claim 28 wherein the biological sample is selected from the group consisting of whole blood, white cells, mononuclear cells, platelet concentrates, blood,

plasma, serum, cerebrospinal fluid, urine, saliva, milk, ductal fluid, tears, semen, feces, tonsils, lymph nodes, collagen, brain extracts and gland extracts.

31. The method of claim 28 wherein the ligand is attached to a solid support prior to contacting the sample.

32. The method of claim 28 wherein the solid support is selected from the group consisting of membranes and resins.

33. The method of claim 28 wherein the solid support is a resin selected from the group consisting of polymethacrylate, agarose, sepharose, cross-linked agarose, composite cross-linked polysaccharides, celite, polyvinyl D, fluoride acrylate, polystyrene and cellulose.

34. The method of claim 28 wherein the solid support is polymethacrylate resin.

35. The method of claim 28 wherein the solid support is a membrane selected from the group consisting of nylon and cellulose.

36. A composition for binding prion proteins, comprising:
a ligand capable of binding to one or more prion peptides; and
a solid support, wherein the ligand is attached to the solid support.

37. The composition of claim 36 wherein the solid support is selected from the group consisting of membranes and resins.